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# The Anthropocene, hyperobjects, and the archaeology of the future past

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*Introduction*

Humans have recently had to reckon with our impact on the Earth. Geologists proposed a new epoch named the Anthropocene to delineate between the Holocene and one characterized by the effect of humans on the planet, primarily anthropogenic climate change (Crutzen 2002). Evidence of this geological layer was first identified in ice cores, which showed increased carbon dioxide and methane starting in the late 18th century (Crutzen 2002:23). Recent studies have gone further, demonstrating that the Anthropocene is stratigraphically distinct from the Holocene through layers containing plastics, chemicals, and radiation (Waters *et al.* 2016). It is increasingly evident that archaeologists in a hundred or a thousand years will have significantly different datasets and methods. What will the archaeology of our present – the future past – look like?

The archaeological record has traditionally been viewed from the perspective of artifacts, features, sites, and ecofacts, linked through geographic, temporal, or cultural boundaries (e.g. Mesoamerican, Bronze Age, Minoan) (Binford 1964); however, these categories have proven problematic (Olsen *et al.* 2012:8). A theory of time-transgressive entities of vast geographical scope known as *hyperobjects* developed in response to global warming (Morton 2013). In lieu of the global layers that delineate the Anthropocene, it is necessary to expand the scope of the archaeological record beyond traditional definitions that are site or culturally bounded. Matt Edgeworth (2018) argues that archaeological strata have active environmental agency and constitute more than just a 'record' – a term which denotes passivity. Instead, he proposes an "archaeosphere" that comprises the "totality of archaeological evidence or humanly modified ground [which] can itself be considered a hyperobject" (Edgeworth 2016:107). He envisions that the lithosphere, hydrosphere, atmosphere, biosphere and archaeosphere all intermesh (Edgeworth 2018:23). The term "hypanthropos" has been proposed by Christopher Witmore to replace the unspecified "anthropos" of the Anthropocene and signal the emergence of "a metabolic assemblage in excess of monstrosity" found in soil, water, and air (2014, 2019). Hypanthropos combines hyper and hypo to convey a sense of something both beyond and beneath past understandings of anthropos. As these past definitions of anthropos were formulated on grounds different from this "outrageous aggregate monstrosity," Witmore suggests Hypanthropocene as more fitting term for this epoch.

A human-generated hyperobject, which exceeds human individuals themselves, comprises archaeological sites, global warming, and ozone depletion. Due to the spatial and temporal scale of the hyperobject, it is something we exist inside. Þóra Pétursdóttir writes, "The very reason we speak of the Anthropocene is not that we have lost connection with the past but rather that we increasingly are unable to pretend that it's gone" and it is "overwhelmingly present and threatening" (2017:182, 194). Objects possess hidden aspects that are not fully comprehensible, which Harman terms their "dark side" (2016:7). Dark artifacts are found in the Anthropocene (Hudson 2014), such as radioactive waste, and Anthropocene archaeology examines "how they endure and outlive us, and how they interact outside our control and domain" (Pétursdóttir 2017:194). Material culture, which is currently at the heart of the field, plays a diminished role in the hyperobject, as Anthropocene impact extends beyond physical objects. As the role of artifacts recedes, future archaeologists will rely more on ecofacts, and perhaps new categories of archaeological information, to reveal past narratives.

*The Archaeological Record as a Hyperobject*

The "speculative turn" in philosophy challenges correlationism, or the subject-object relations that have typified philosophy since Kant, in favour of flat ontologies that do not privilege the human mind over external entities (Harman 2018:12). Archaeology has contributed significantly to flat ontologies through Symmetrical Archaeology (Witmore 2007; Olsen *et al.* 2012), among other object-oriented approaches. Object-Oriented Ontology (OOO) is a prominent flat ontology, which argues that real objects are withdrawn or withheld in the manner of Heidegger and we only perceive their sensual properties where they come in contact with other objects (Harman 2018:7). OOO uses the term 'object', but archaeologists new to OOO may find the term 'entity' more suitable due to other connotations of 'object' within the field. OOO is significant for the present discussion, as it has identified a type of object, previously unacknowledged, named *hyperobject* by Timothy Morton (2013). It describes entities of vast temporal and geographical scope, such as black holes and global warming. The Big Bang dates to the beginning of time and we cannot see it; however, its gravity waves are passing through our bodies right now (Morton 2013:64). We cannot perceive them with our sensory organs, but the Big Bang's residue is visible every time we see static on a television. We live inside the Big Bang hyperobject and perceive it only through instrumentation. Hyperobjects can be biological, such as the biosphere or phytoplankton colonies, and Morton conceived of hyperobjects as a means to address global warming as a phenomenon (2013:58).

Due to their vast scale, hyperobjects present conceptual and methodological challenges. Their geographical and temporal scale makes them 'thinkable' but not directly observable (Morton 2013:12). As a result, we observe aspects of hyperobjects interacting with other entities, but not the whole object. This means hyperobjects simultaneously inhabit small and vast spaces, which makes their appearance "strange" or "uncanny" (Morton 2013:55). Global warming is not directly observable since we cannot perceive incremental temperature increases, but it is evident through scientific instruments. Instead, we have local experiences like extreme weather events or increased sunburns. These manifestations are not global warming itself, but aspects of it interacting with other objects (e.g. sea, skin, etc.). Morton refers to this as "nearness" and "stickiness," as the hyperobject cannot be avoided even if it appears far away. We cannot see the Big Bang or global warming, but their effects are all around us.

Archaeology is well-suited to consider hyperobjects as a field that examines timescales beyond human lifetimes (Witmore 2007). Not only is global warming a hyperobject, but it is one component of a broader hyperobject encompassing human residue on Earth. "Residue", used by Edgeworth (2018:19), is an apt term as it describes the vestiges of an unpremeditated process of human activity, and reflects hyperobjects' stickiness and indifference. In OOO, an object is anything that "is more than its pieces and less than its effects" (Harman 2018: 53). Human activity is the commonality between a series of ecological crises, including global warming, the sixth mass extinction, and global layers of radiation, chemicals, and plastics. It is evident that human residue on Earth is an object producing effects on a geographic and temporal scale that qualifies as a hyperobject.

Why is archaeology a hyperobject rather than a biological byproduct as other species produce? First, if humans vanished today, the hyperobject would continue to exist for centuries. The global radiation layer will remain for over 20,000 years (Waters *et al.* 2016) and radioactive waste for 250,000 years (Rao 2001). Other aspects, like the hole in the ozone layer and anthropogenic climate change, would continue for centuries.

Second, there is no part of Earth that is not impacted. Human culture is sticky and clings to everything. Humans are an ecosystem independent species numbering over 7 billion and the effect is global. Climate change is altering DNA and causing migrations and behavioral changes (Caldwell *et al.* 2007). We can identify the direct effects of the hyperobject like global warming, vertebrate extinctions, and UV radiation, and cultural reactions like hybrid cars, nature parks, and sunscreen. Greenhouse gases and rising temperatures are consequences of culture and reveal information about the human experience, but, importantly, also impact culture and are not 'material.' In this way, the archaeological record is not an assemblage of material culture, but an archaeosphere or hypanthropos with agency.

It is debated whether to start of the Anthropocene in 1945, the Industrial Revolution, or hominin control of fire 400,000 years ago (Steffen *et al.* 2015; Scott 2017). Witmore contends that a search for the Anthropocene's origin is futile and arbitrary, as present circumstances are the result of fossil-fuel consuming societies (2014:129). The discussion should focus on humans as agents on a geological scale (Edgeworth *et al.* 2019).

The hyperobject is not observable in its totality because we exist inside it. Traditional archaeological methods can observe aspects of the hyperobject, but increasingly scientific methods reveal indicators (e.g. Waters *et al.* 2016) and broaden archaeology beyond material culture. Hyperobjects cause asymmetry, in the case of global warming removing a level of agency from humans. "Entities that are massively distributed in time exert downward causal pressure on shorter-lived entities… one vivid effect of global warming has been the phenological asynchrony: the way plant and animal life events have gone out of sync" (Morton 2013:67). In order to address this asymmetry – and the hyperobject's impact on us – ecofacts come to the forefront of inquiry, while artifacts recede.

Artifacts and features are material culture that include, but are not limited to, human-made objects, buildings, and sites. In contrast, ecofacts are environmental indicators of human activity including direct deposits like anthropogenic sediments and indirect deposits like pollen which are indicative of human-driven environment change. Ecofacts have played an increased role in archaeological interpretations through geoarchaeology, paleoethnobotany, and ancient DNA (e.g. Roberts *et al.* 2017; Rothacker *et al.* 2018). Identification of anthropogenic *terra preta* soils has revolutionized understanding of Amazonian land use during prehistory (Roberts *et al.* 2017). Kyle Harper re-framed the Rome Empire through environmental data, arguing that the Romans "had no idea of the contingent and parlous environmental foundations of what they had built" (2017:15). While elements of his synthesis have been criticized (Haldon *et al.* 2018), Harper's argument of contingent existence based on factors of vast time-scales is accepted. Rather than artifacts, these large-scale narratives are evident through ecofacts.

Artifacts cannot be separated into their components without losing their function, but *hyperfact* is a term Johan Normark coined to describe entities that exist in multiple forms while maintaining their essence (2014). Water is used by humans in many ways yet maintains its essence, making it neither cultural nor natural (Normark 2014:189). The Anthropocene introduces several entities that do not easily fit within Binford's categories (1964), which have been challenged as inadequate (Olsen *et al.* 2012:8), and hyperfact is one such new category. Radioactivity cannot be directly observed and exists on different scales, which better suits the category of hyperfact than artifact or ecofact. Since hyperfacts are used by humans while maintaining their essence, they possess lives beyond human use. The "dark artifact" afterlives erupt out of human intentions into unexpected manifestations, which is

especially evident with radiation (Hudson 2016:84; Pétursdóttir 2017:196). In this period of asymmetry, ecofacts, hyperfacts, and dark artifacts allow for understanding Anthropocene cultures.

*Finding Cultural Narratives in Anthropocene Deposits*

Future archaeologists will interpret cultural narratives from multi-scalar sources spanning the molecular to planetary. This is not an imagined future; this is anthropogenic data that currently exists. At the smallest scale, synthetic elements – Periodic Table numbers 43, 61, 85, 87, and 93-115 – do not occur naturally, but are used in medicine and technologies like smoke detectors (Stoker 2007:275). Humans have modified DNA for millennia through domestication, including "all Linnaean animal classes – mammals, birds, reptiles, amphibians, fish, insects, and even, arguably, bacteria" (Zeder 2012). However, Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) allows for direct gene editing of humans (Ran *et al.* 2013), at least illegally. Two children born in China are the first genetically edited humans (Zhang 2019). The change in climate from the Pleistocene to Holocene caused genetic changes and anthropogenic climate change is affecting species' DNA due to temperature change, ecosystem stress, and UV radiation (Caldwell *et al.* 2007).

The splitting of the atom is a defining advancement of the modern era and its most distinctive indicator is the global radiation layer that appeared in the 1950s (Waters *et al.* 2016). Radiation from early atomic testing has permeated everything, increasing radioactivity in terrestrial metals and embedding in the teeth of individuals born after 1945 (Holmes *et al.* 2017:1; Spalding *et al.* 2005). Anthropogenic radiation is not a material, yet has agency that shapes policy, architecture, and clothing. It is a product of energy creation, only perceptible as heat or through instrumentation, and it has profound effects. The 1986 Chernobyl meltdown created a radiation zone causing biological mutations to this day (Møller & Mousseau 2006). Sponge divers believe Chernobyl caused the Mediterranean sponge blight (Kalafatas 2003:52), permanently ending highly-developed insular cultures in a single summer. Radioactive waste has a half-life of 250,000 years and anatomically modern humans are approximately 200,000 years old, raising the question of what our species will be when the waste is finally inert.

A Geiger counter may be as common as a trowel for Anthropocene archaeologists (Figure 1). The global radiation layer creates an Anthropocene temporal divide stratigraphically (Spalding *et al.* 2005), similar to the KT boundary in paleontology. A site can be temporally oriented anywhere in the world based on its position relative to the radiation layer. Global chemical signatures from pesticides, leaded gasoline, and fertilizer serve as similar stratigraphic boundaries (Waters *et al.* 2016:137).

Five extinction events over the course of Earth's history terminated >75% of species (Ceballos *et al.* 2015). A "sixth extinction" is underway based on a vertebrate extinction rate that is 100 times higher than the baseline (Ceballos *et al.* 2015). Similar to Pleistocene megafauna, future archaeologists may note a horizon of Holocene mammals and their conspicuous absence in the Anthropocene. Instead, a preponderance of domesticated species will be evident. Human biomass together with our domesticated species currently outweighs the combined biomass of all mammals in nature by twenty times (Bar-On *et al.* 2018). Given preservation rates, we may pass the threshold of "wild" species being visible in the material record.

There are serious ecological issues arising from human activity. Irregular and extreme weather events caused by climate change is amplifying droughts (Figure 2), which was a significant contributing factor to the Syrian civil war and subsequent mass migration (Gleick 2014). There is uncertainty whether crops can adapt to temperature changes (Gregory *et al.* 2005:2145). Ecologists have confronted an uncomfortable truth that there is no 'nature' remaining. "Nature is simply reified history," argues Morton (2013:58). National parks are viewed as 'nature', but they are culturally manufactured to maintain an artificial population that fits an interpretation of 'nature' prior to humans (Angermeier 1994; Pritchard 2002). A review of Yellowstone's phases demonstrates that it reflects the values of the human management rather than any reflection of nature (Pritchard 2002). Most national parks maintain a reified and static 'nature' through a strategy of culling certain species while bolstering others (Angermeier 1994; Morton 2007:164). Human landscapes do not return to a primordial state. Instead, new plants develop over abandoned sites (e.g. Mathews 2017), indicating buried human strata (Parcak 2009:92). An abandoned cultural landscape can become a non-human landscape, but it never returns to a pre-human landscape.

Materials have been crucial to understanding past cultures, whether stone, bronze, or iron. However, material may be less useful to future archaeologists. Mass production creates enormous quantities of goods that are transported globally, resulting in artifacts with less meaningful connections to individuals or place. V. Gordon Childe wrote, "We find certain types of remains – pots, implements, ornaments, burial rites, house forms – constantly recurring together. Such a complex of regularly associated traits we shall term a 'cultural group' or just a 'culture'. We assume that such a complex is the material expression of what today would be called a people" (Childe 1929). Today, the presence of Ikea furniture, Walmart dishes, and Styrofoam cups designed for disposability arguably reveal less about an individual's culture. Daniel Miller correctly argues that even mass produced goods have different meanings based on context (2010:9). However, mass produced objects likely contain less meaning for future archaeologists than other sources, such as digital data.

Computers are integral to many contemporary cultures for communication, information storage, and mechanized labor. A decade ago, a computer was a standalone technology, but the Internet of Things has integrated everyday objects into computer networks. 2.5 quintillion bytes of data are generated each day (Marr 2018:1). An understanding of contemporary culture is not possible without digital data or the Internet.

Study of an ancient artifact typically consists of its outward characteristics: design, material, shape, and spatial location. Inward examination of an artifact, such as petrology or isotope analysis, provides useful but contributing data. An artifact's inward data is limited; however, digital data is the opposite. Computers can be the same model, but the data on the interior can differ considerably. The vast quantities of digital data cannot be engaged with like historical archaeology, where historical accounts supplement archaeological evidence. Rather, the digital data are primary, formative, and drivers of culture and cultural identity (e.g. Reinhard 2018). There is, however, mounting concern of a "Digital Dark Age" as degrading compact discs, hard drives, and file formats (e.g. JPEG) cause data to disappear from the digital-historical record (Jeffrey 2012:554). Despite the enormous amount of data created, less information may survive from the present than previous periods.

Anthropogenic greenhouse gases are global in scale. $CO_2$ is higher than any period in the last 3 million years (Waters *et al.* 2016). Chlorofluorocarbons have degraded the ozone layer (Figure 3), increasing UV radiation and causing genetic mutations (Kelfkens *et al.* 1990).

Global warming is physically altering the seafloor and glaciers are receding (Sulpis *et al.* 2018). This will result in sea-level rise, impacting coastal settlements (Nicholls & Cazenave 2010). Oceans cover 70% of the planet and have borne the majority of humans' impact, such as a layer of microplastics (Cole *et al.* 2011). Waste has collected in oceanic gyres with the Pacific containing the "Great Garbage Patch," measuring over 1.6 million $km^2$ and composed of ~1.8 trillion plastic pieces (Lebreton *et al.* 2018). In terms of surface area, the garbage patch is the planet's largest cultural deposit, despite being located 1,600 km from land.

The long-term impact of the anthropogenic hyperobject is measured in centuries and millennia. 75% of global warming effects will continue for 500 years and 7% for 100,000 years (Morton 2013:58–59). It will shape the social, political, and cultural development of our species. Historically disenfranchised groups will bear the brunt of social and economic burdens, while developing countries will fall further behind industrialized leaders. Ironically, the latter have disproportionally contributed to the hyperobject. These changes are certain to leave an imprint in the archaeological record. The hyperobject affects the existing archaeological record through capitalism's market for certain artifacts, driving widespread and systematic looting of archaeological sites (Campbell 2013). Anthropocene archaeologists may struggle to find undisturbed contexts.

The human residue extends beyond the Earth's bounds. There are orbiting satellites, space stations, and debris from hundreds of launches since 1957, while material from NASA's missions are on Mars and the Moon (Gorman 2014; O'Leary & Capelotti 2015). Researchers have begun examining the archaeology of the International Space Station (Walsh and Gorman 2017). The Voyager 1 satellite has traveled 21 billion km, leaving our solar system for interstellar space. The most significant cultural assemblage in space may be radiowaves. Traveling 100 light years from Earth – 28,000 times further than Voyager 1 – one could listen to our earliest radio transmissions (Bennett 2017). It is through radiowaves that humans may contribute something to deep time, far outlasting physical structures.

*Discussion*

The Anthropocene is not simply human impact on the environment, but the unintended creation of a hyperobject that is changing the climate through the persistence of objects. Inside the hyperobject, archaeology ceases to be bounded in the conventional manner. Pétursdóttir argues that "Traditionally, *meaning* in archaeology is constructed through the inherent, hierarchical ordering of archaeological assemblages confined to certain localities, and relations between these" but Anthropocene objects extend beyond these bounds (2017:196). We may be able to observe a Paleolithic stone tool from the outside, but the layer of radiation blanketing the planet interacts with our tissues. It is part of us. This archaeology cannot be addressed through processual or post-processual paradigms. Anthropocene archaeology is altogether different and requires new approaches such as Symmetrical Archaeology, New Materialism, Supermodernity, and others (Witmore 2007; Olsen *et al.* 2012; Dawdy 2009; Olivier 2011; Edgeworth 2016; Harrison 2016; Pétursdóttir 2017; Gonzalez-Ruibal 2019).

Archaeology's dependence on the material record is receding while ecofacts play an increasing role. Certainly material plays a role in our lives, but non-material Anthropocene forces increasingly have long-term social impacts. The narrative of contemporary societies cannot be told without the splitting of the atom, the Internet, and anthropogenic climate change. Arguably, our present material record does not make sense without non-material sources; radiation and radiowaves are not *material* culture, but are cultural, durable, and

provide significant information (Figure 4). Just as physicists measure gravity waves as the archaeo-energy of the Big Bang, archaeology will use energy sources to learn about cultures. These new sources are dark artifacts which are strange and distant from what we consider archaeology to be; however, the Anthropocene archaeologist will likely be well-versed in them. The physically-bounded flat containers, such as artifacts, sites, features, and assemblages (Table 1), are giving way to unbounded dark objects erupting with unintended and persistent qualities: archaeo-energy, hyperfacts, digital-facts, and ecofacts. While the former are directly observable, the latter are generally accessed through scientific instrumentation.

| **Bounded Categories** | **Examples** | **Unbounded Categories** | **Examples** |
|---|---|---|---|
| *Artifact* | handaxe, Rosetta Stone | *Ecofact* | anthropogenic sediments, greenhouse gases, DNA, microplastics |
| *Site* | settlement, Stonehenge | *Hyperfact* | water, radioactivity |
| *Feature* | grave, posthole | *Archaeo-energy* | radiowaves, nuclear radiation |
| *Assemblage* | a site's lithics collection, Athenian *ostraka* | *Digital-fact* | ASCII data, Geocities archive, mp3, online communities |

Table 1. Conventional, bounded, categories of archaeological data compared to unbounded categories.

Traditional definitions of archaeology were designed for a field that is past. Already looters are targeting ships sunk during the World Wars because pre-atomic steel has lower background radiation (Holmes *et al.* 2017:1). This is a phenomenon unique to the Anthropocene; the value is neither intrinsic nor aesthetic, but due to the fact that it is less Anthropocenic than metal found on land. Murder investigators are distinguishing unidentified victims born after 1945 from the radiation in their teeth through a method developed in Sweden, a country without atomic weapons (Spalding *et al.* 2005). Dogs encased in concrete were excavated at the University of California at Davis (Morton 2013:34); they had been fed strontium-90 and radium-226 during medical testing and remain radioactive after death. This is the nature of archaeology in a field reshaped to teach the lessons of an Anthropocene Earth rather than a Holocene one. Is it a "deposit" if in the atmosphere or space? Is it a "site" if hurdling at 27,500 km per hour around the planet? Traditional archaeology becomes problematic upon entering the Anthropocene. We must define archaeology for a future of sequencing DNA, collecting microplastics, and detecting radioactivity.

## *Defining Archaeology for the Future Past*

The Anthropocene challenge necessitates a "jolting of the archaeological imagination" (Pétursdóttir 2017:192). The definition of archaeology might be different for our Anthropocene colleague. The etymology of the term is Greek – *archaiologia* is derived from a combination of *archaios*, meaning ancient or old, and *logia*, study or learning. Most 'ancient or old' objects survive as part of the material record, which is a significant component of most definitions. "Archaeology is basically about three things: objects, landscapes and what we make of them. It is quite simply the study of the past through material remains" (Gamble 2000:15). The current definitions of archaeology are designed for hearths and hand-axes. A less relative definition, encompassing the entirety of human residue, would be helpful.

The concept of "old" is problematic and, as Assaf Nativ and Gavin Lucas argue, limiting (2020). Michael Shanks argues that archaeology "focuses upon the gap between the lived past and its ruin now" (1995:17). Consideration of our Anthropocene future could be seen as

pondering the gap between the lived present and ruined future. This is because of the persistence and monstrosity of Anthropocene objects, which continue beyond human control and lifetimes (Pétursdóttir 2017; Witmore 2019). Their persistence precludes a gap (Hudson 2014:85; Nativ and Lucas 2020:853); we are integrated into the objects' present and future. Global warming and radioactive waste were produced in the past, but their agency extends into future. A study of radioactive waste facilities necessarily includes the Human Interference Task Force's imagined futures. Their Waste Isolation Pilot Plant includes danger signs designed to communicate with possible futures without the English language or recognizable humans (Trauth *et al.* 1993). Archaeology, then, becomes the study of human cultures across time, examining past and future objects. This is not philosophical, but methodological. The study of past plastics must include present humans contaminated with mercury (Hudson 2014:83) and the study of Lucca's present forest is the study of past agriculture (Mathews 2017:G145).

What is it we are doing as archaeologists? Are we focused solely on material culture? Ian Hodder acknowledges archaeology's material bias, stating, "things are really flows of matter, energy and information but I have focused largely on those flows that produce hard matter that endures," while "gases, vapors, smells and sounds" do not receive much attention (Hodder 2012:218). It is not that the immaterial does not have significance, but that archaeology has difficulty addressing these entities methodologically. Archaeology is therefore the study of culture with the material record offering the best source to understand life during the Pleistocene and Holocene, but this may not be the case for the Anthropocene.

More idealized definitions get to the heart of the matter. Michael Schiffer states that "Anthropology is the only discipline that can access evidence about the entire human experience on this planet" (1999:64). David Hurst Thomas argues, "It's not what you find, it's what you find out" (Thomas 1989:31). If archaeology's aim is to understand the human experience, then material culture is simply one vector to do so. A definition must reflect the diversity of cultural information available (Witmore 2014; Pétursdóttir 2017), including radiation and atmospheric $CO_2$. These material and immaterial entities distinguish the Anthropocene from the Holocene and form the core of the future archaeologist's study. In this way, archaeology examines the sum of human residue and its persistence on Earth and beyond.

*Conclusion*

Archaeology is expanding beyond the material record and, arguably, the study of the past. Human residue cannot be regarded as composed of spatially and temporally flat containers: the easily held objects that "artifact" denotes. Ecofacts are increasingly significant for identifying large-scale narratives. Cultural evidence is simultaneously miniscule, existing at a molecular level, and immense, expanding hundreds of light years beyond our planet. It includes radiation, radiowaves, and greenhouse gases. Humans have created a hyperobject – whether known as the archaeological record, archaeosphere, or hypanthropos – of vast time scales that will remain for hundreds of thousands of years.

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*Figures*

**Figure 1.** A dosimetrist checks radioactivity with a Geiger counter while wearing field gear that may be common for Anthropocene archaeologists (Presslab/Shutterstock).

**Figure 2.** Anthropocene environmental crises include drought, such as in the Aral Sea (left), and increased extreme weather events, such as Hurricane Harvey (right) (Daniel Prudek/Shutterstock; MDay Photography/Shutterstock).

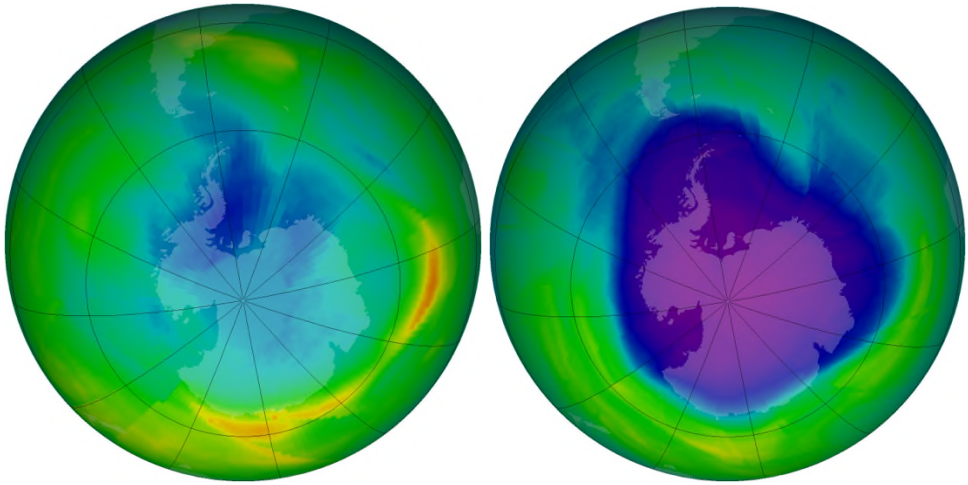

**Figure 3.** The depletion of the ozone layer over Antarctica from 1979-2008 is evident through scientific instrumentation, but it is not directly observable (NASA/Goddard Space Flight Center/Ozone Processing Team).

**Figure 4.** Archaeo-energy contains cultural information, such as the global radiation layer and radiowaves (Lukasz Pawel Szczepanski/Shutterstock; Vchal/Shutterstock).